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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/676,367	09/29/2000	Yoshiaki Yokoyama	Yaguchi-0012	2186
22850	7590	12/05/2003	EXAMINER	
OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314			RINEHART, KENNETH	
		ART UNIT	PAPER NUMBER	
		3749	18	
DATE MAILED: 12/05/2003				

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)
	09/676,367	YOKOYAMA ET AL.
	Examiner	Art Unit
	Kenneth B Rinehart	3749

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 21 October 2003.
- 2a) This action is **FINAL**.      2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-45 is/are pending in the application.
  - 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) 34 and 35 is/are allowed.
- 6) Claim(s) 1-29,31-33 and 36-45 is/are rejected.
- 7) Claim(s) 30 is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.
 

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. §§ 119 and 120

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) All b) Some \* c) None of:
    1. Certified copies of the priority documents have been received.
    2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.
- 13) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
  - a) The translation of the foreign language provisional application has been received.
- 14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

#### Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4, 15.
- 4) Interview Summary (PTO-413) Paper No(s) \_\_\_\_\_.
- 5) Notice of Informal Patent Application (PTO-152)
- 6) Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Response to Arguments***

Applicant's arguments filed 10/21/03 have been fully considered but they are not persuasive. Regarding Fochtman, the applicant argues that when residue is cooled at atmospheric pressure there is a potential for generating an regenerating organic halides, such as dioxin. This statement may well be correct, however, a fair reading of the Fochtman reference illustrates that it operates at a vacuum state. Additionally, the purge gas of nitrogen (33, fig. 1) will cool the residue. Regarding applicants argument concerning claims 13-19, 21, 23-29, and 31 that the purge gas is substantially organic halide free, a fair reading of the reference will reveal that not only is the purge gas substantially organic halide free, but that it can be entirely oxygen free (col. 6, line 9). Regarding applicants arguments concerning claims 32 and 33, a fair reading of the reference will reveal that a vacuum state is achieved or sustained in Mak et al even with a steady flow of gas pumped into the chamber.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-6, 11, 22, 36 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. The claims refer to vacuum or vacuum state which was not described in the specification in such a way as to enable

one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-6, 11-12, 22, 23, 25-29, 36, 37, 38, 39, 40, 41, 42, 43 are rejected under 35 U.S.C. 102(b) as being anticipated by Mak et al. Mak et al shows introducing the first soil to a hermetic zone (col. 2, line 29, 22, fig. 1), pumping out the hermetic zone to a vacuum state (col. 5, lines 51-68, col. 6, lines 1-3), thermally decomposing at least a part of the organic halides by heating the first soil under in the hermetic zone under the vacuum state (col. 5, lines 11-15, col. 5, lines 51-68, col. 6, lines 1-3), the organic halides are dioxins (col. 2, line 43), reducing the concentration of halogen contained in gases produced by the thermal decomposition of the soil (col. 3, lines 7-11), wherein a thermally decomposed residue of the first soil is cooled after the hermetic zone is purged by a purge gas which is substantially organic halide free and not capable of generating organic halides (col. 7, line 59, col. 9, lines 61-64, fig. 3), the purge gas contains at least one element selected from a group consisting of helium, neon, argon, krypton, xenon, nitrogen, and hydrogen (col. 7, line 59), wherein the thermally decomposing step is performed in the hermetic zone where an oxygen concentration is controlled (12, fig. 1, col. 5, lines 51-68, col. 6, lines 1-3), the soil containing organic halides is thermally decomposed under a vacuum state (col. 5, lines 11-15, col. 5, lines 51-68, col. 6, lines 1-3), the concentration of halogen contained

in gases produced by the thermal decomposition of soil is reduced (col. 3, lines 7-11), wherein an object to be treated containing organic halides is thermally decomposed under a vacuum state (col. 5, lines 11-15, col. 5, lines 51-68, col. 6, lines 1-3), means for heating the object (76, 78, 80, fig. 1), a hermetic zone (12, fig. 1), means for introducing a heated residue to the hermetic zone (22, fig. 1), means for purging the hermetic zone by a purge gas which is substantially organic halide free (126, fig. 1), means for cooling the heated residue (fig. 3), the heating means is a thermal decomposition furnace for thermally decomposing the object (12, fig. 1), wherein the heating means is a reduced pressure thermal decomposition furnace for thermally decomposing the object to be treated under reduced pressure (12, fig. 1), the purging means introduces the purge gas after the pressure in the hermetic zone is reduced (col. 5, lines 11-15, lines 26-29, 168, fig. 1), wherein a heated residue containing residual dioxins generated from waste disposal facilities and factories is treated while being heated under a vacuum state (col. 5, lines 11-15, col. 5, lines 51-68, col. 6, lines 1-3, 38, 16, fig. 1), a heating device configured to heat the soil (54, 56, fig. 1), a hermetic zone (16, fig. 1), an introducing device configured to introduce a heated residue of the soil from the heating device to the hermetic zone (22, fig. 1), a purging device configured to purge the hermetic zone by a purge gas which is substantially organic halide free (col. 5, lines 11-15, lines 26-29, 168, fig. 1), a first cooling device configured to cool the heated residue (fig. 3), wherein the heating device is a combustion furnace for performing combustion treatment for the soil (54, 56, fig. 1) wherein the heating device is a thermal decomposition furnace configured to perform thermal decomposition treatment for the soil (fig. 1, col. 5, lines 11-15), wherein the heating device is a reduced pressure thermal decomposition treatment for the soil (col. 5, lines 11-15, col. 5, lines 51-68, col. 6, lines 1-3,)

Claims 7-10, 13, 20, 37, 44, and 45 are rejected under 35 U.S.C. 102(b) as being anticipated by Fochtman et al. Fochtman et al shows heating the first soil so that at least part of the organic halide are evaporated or decomposed (col.6, lines 63-69, col. 7, lines 1-3, col. 7, line 26) introducing a heated residue of the soil to a hermetic zone (13, fig. 6), cooling the heated residue of the first soil (8, fig. 6) after the hermetic zone is purged by a purge gas which is substantially organic halide free and not capable of generating organic halides (8, fig. 6), the organic halides are dioxins (col. 7, line 59), the purge gas contains at least one element selected from a group consisting of helium, neon, argon, krypton, xenon, nitrogen, and hydrogen (col. 16, line 9), reducing a concentration of halogen contained in gases produced by heating the first soil (col. 9, lines 54-58), means for heating the soil (5, fig. 6), a hermetic zone (13, fig. 6), means for introducing a heated residue of the soil from the means for heating the soil to the hermetic zone (screw flights of 5, fig. 6), means for purging the hermetic zone by a purge gas which is substantially organic halide free (which is short of organic halides) (9, fig. 6), means for cooling the heated residue (8, fig. 6), halogen trapping means having a metal for forming chemical compounds with halogen contained in gases produced by heating of the soil or an absorbent for absorbing the halogen in the produced gases (col. 9, lines 9-17), a heating device configured to heat the soil (col.6, lines 63-69, col. 7, lines 1-3, col. 7, line 26), a hermetic zone (13, fig. 6), an introducing device configured to introduce a heated residue of the soil from the heating device to the hermetic zone (col. 15, lines 49-51), a purging device configured to purge the hermetic zone by a purge gas which is substantially organic halide free (nitrogen, 9, fig. 3), a first cooling device configured to cool the heated residue (8, fig. 6, nitrogen, fig. 6), a trapping device configured to trap halogens having a metal for forming chemical compounds with halogen

contained in gases produced by the heating of the soil or an absorbent configured to absorb the halogen in the produced gases (col. 9, lines 9-17).

Claims 1-3, 6, 11, 12, 22, 32, 33, and 36 are rejected under 35 U.S.C. 102(b) as being anticipated by Hardison et al. Hardison et al shows introducing the first soil to a hermetic zone, pumping out the hermetic zone to a vacuum state, thermally decomposing at least a part of the organic halides by heating the first soil under in the hermetic zone under the vacuum state, the organic halides are dioxins, wherein the thermally decomposing step is performed in the hermetic zone where an oxygen concentration is controlled, the soil containing organic halides is thermally decomposed under a vacuum state, the concentration of halogen contained in gases produced by the thermal decomposition of soil is reduced, wherein an object to be treated containing organic halides is thermally decomposed under a vacuum state, wherein a heated residue containing residual dioxins generated from waste disposal facilities and factories is treated while being heated under a vacuum state, reducing the concentration of halogen contained in gases produced by the thermal decomposition of the soil wherein an object to be treated is passed through a furnace allowing the control of thermal decomposition temperature or through a plurality of reduced pressure furnaces different in thermal decomposition temperature when being subjected to thermal decomposition treatment while the pressure is being reduced from normal pressure, a furnace allowing the control of thermal decomposition temperature at which an object to be treated is subjected to thermal decomposition treatment is provided, the pressure is changed from normal pressure to a predetermined degree of vacuum, and thus the degree of vacuum is allowed to be maintained (fig. 1, col. 1, lines 8-20, col. 1, lines 45-57, col. 3, lines 3-18, col. 5, lines 39-col. 7, line 55, col. 12, line 30-col. 13 ,line 31).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 13-19, 21, 23-29, 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Veltmann in view of Mak et al. Veltmann discloses means for heating the soil or object (20, fig. 2), a hermetic zone (2, fig. 2), means for introducing a heated residue of the soil from the means for heating the soil to the hermetic zone (57, fig. 15), means for cooling the heated residue (4, fig. 2), the heating means is a combustion furnace for performing combustion treatment for the soil (20, fig. 2), the heating means is a combustion furnace for combusting the object (20, fig. 2), reforming means for reforming gases produced by the heating of the soil at a first temperature at which dioxins are decomposed (col. 11, lines 34-47), cooling means for cooling the produced gases to a second temperature so that an increase in the concentration of the dioxins in the gases is suppressed (col. 11, lines 47-55). Veltmann discloses applicant's invention substantially as claimed with the exception of means for purging the hermetic zone by a purge gas which is substantially organic halide free, the heating means is a thermal decomposition furnace for thermally decomposing the object, wherein the heating means is a reduced pressure thermal decomposition furnace for thermally decomposing the object to be treated under reduced pressure, the purging means introduces the purge gas after the pressure in the hermetic zone is reduced, the organic halides are dioxins, the purge gas contains at least one element selected from a group consisting of helium, neon, argon, krypton, xenon, nitrogen, and hydrogen. Mak

teaches means for purging the hermetic zone by a purge gas which is substantially organic halide free (col. 6, lines 4-11), the heating means is a thermal decomposition furnace for thermally decomposing the object (12, fig. 1), wherein the heating means is a reduced pressure thermal decomposition furnace for thermally decomposing the object to be treated under reduced pressure (12, fig. 1), the purging means introduces the purge gas after the pressure in the hermetic zone is reduced (col. 5, lines 11-15, lines 26-29, 168, fig. 1), the organic halides are dioxins (col. 7, line 59), the purge gas contains at least one element selected from a group consisting of helium, neon, argon, krypton, xenon, nitrogen, and hydrogen (col. 16, line 9). It would have been obvious to one of ordinary skill in the art to modify Veltmann by including means for purging the hermetic zone by a purge gas which is substantially organic halide free, the heating means is a thermal decomposition furnace for thermally decomposing the object, wherein the heating means is a reduced pressure thermal decomposition furnace for thermally decomposing the object to be treated under reduced pressure, the purging means introduces the purge gas after the pressure in the hermetic zone is reduced, the organic halides are dioxins, the purge gas contains at least one element selected from a group consisting of helium, neon, argon, krypton, xenon, nitrogen, and hydrogen as taught by Mak et al for the purpose of reducing the quantity of off gases to reduce the cost of the process.

Claims 32-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mak in view of Veltmann. Mak discloses wherein an object to be treated is passed through a furnace allowing the ... of thermal decomposition temperature or through a plurality of reduced pressure furnaces different in thermal decomposition temperature when being subjected to thermal decomposition treatment while the pressure is being reduced from normal pressure (col. 5, lines

11-23, col. 5, lines 51-68, col. 6, lines 1-3), a furnace allowing the ... of thermal decomposition temperature at which an object to be treated is subjected to thermal decomposition treatment is provided , the pressure is changed from normal pressure to a predetermined degree of vacuum, and thus the degree of vacuum is allowed to be maintained (col. 5, lines 11-23, col. 5, lines 51-68, col. 6, lines 1-3, col. 9, lines 14-19). Mak discloses applicant's invention substantially as claimed with the exception of control. Veltmann teaches control (col. 17, lines 31-45) for the purpose of diagnosing malfunctions. It would have been obvious to one of ordinary skill in the art to modify Mak by including control as taught by Veltmann for the purpose of diagnosing malfunctions to facilitate corrective actions and decrease downtime.

Claim 45 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fochtman in view of Rickard. Fochtman discloses a heating device configured to heat the soil (col.6, lines 63-69, col. 7, lines 1-3, col. 7, line 26), a hermetic zone (13, fig. 6), an introducing device configured to introduce a heated residue of the soil from the heating device to the hermetic zone (col. 15, lines 49-51), a purging device configured to purge the hermetic zone by a purge gas which is substantially organic halide free (nitrogen, 9, fig. 3), a first cooling device configured to cool the heated residue (8, fig. 6, nitrogen, fig. 6). Fochtman discloses applicant's invention substantially as claimed with the exception of a reforming device configured to reform gases produced by the heating of the soil at a first temperature at which dioxins are decomposed, a second cooling device configured to cool the produced gases to a second temperature so that an increase in the concentration of dioxin in the gases are suppressed. Rickard teaches a reforming device configured to reform gases produced by the heating of the soil at a first temperature at which dioxins are decomposed (col. 18, lines 1-3), a second cooling device configured to cool

the produced gases to a second temperature so that an increase in the concentration of dioxin in the gases are suppressed (40, fig. 1) for the purpose of eliminating additional aftertreatment and combustion steps. It would have been obvious to one of ordinary skill in the art to modify Fochtman by including a reforming device configured to reform gases produced by the heating of the soil at a first temperature at which dioxins are decomposed, a second cooling device configured to cool the produced gases to a second temperature so that an increase in the concentration of dioxin in the gases are suppressed as taught by Rickard for the purpose of eliminating additional aftertreatment and combustion steps so that the cost of the apparatus can be reduced.

***Allowable Subject Matter***

Claims 34 and 35 are allowed.

Claim 30 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period

will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kenneth B Rinehart whose telephone number is 703-308-1722. The examiner can normally be reached on 7:30-4:30 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ira Lazarus can be reached on 703-308-1935. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0861.

KBR  
  
Kenneth Rinehart  
Patent Examiner  
AU 3749